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NOTICE OF ALLOWANCE AND FEE(S) DUE

21839 7590 09/20/2010

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ALEXANDRIA, VA 22313-1404

EXAMINER

LAU, JONATHAN S

ART UNIT

PAPER NUMBER

1623

DATE MAILED: 09/20/2010

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/560,760 | 10/06/2006 | Volker Doring | 1022702-000304 | 5121 |
| TITLE OF INVENTION: PRODUCTION OF 2'-DEOXYNUCLEOSIDES AND 2'-DEOXYNUCLEOSIDE PRECURSORS FROM 2-DEHYDRO-3-DEOXY-D-GLUCONATE | | | | |

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | NO | \$1510 | \$300 | \$0 | \$1810 | 12/20/2010 |

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

21839 7590 09/20/2010
BUCHANAN, INGERSOLL & ROONEY PC
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ALEXANDRIA, VA 22313-1404

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/560,760 | 10/06/2006 | Volker Doring | 1022702-000304 | 5121 |

TITLE OF INVENTION: PRODUCTION OF 2'-DEOXYNUCLEOSIDES AND 2'-DEOXYNUCLEOSIDE PRECURSORS FROM 2-DEHYDRO-3-DEOXY-D-GLUCONATE

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|----------------|--------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | NO | \$1510 | \$300 | \$0 | \$1810 | 12/20/2010 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|-----------------|----------|----------------|
| LAU, JONATHAN S | 1623 | 536-124000 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
 "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

4a. The following fee(s) are submitted:

- Issue Fee
 Publication Fee (No small entity discount permitted)
 Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- A check is enclosed.
 Payment by credit card. Form PTO-2038 is attached.
 The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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| ART UNIT | | PAPER NUMBER | | |
| 1623 | | | | DATE MAILED: 09/20/2010 |

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 216 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 216 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

| | | | |
|-------------------------------|------------------------|---------------------|--|
| Notice of Allowability | Application No. | Applicant(s) | |
| | 10/560,760 | DORING ET AL. | |
| | Examiner | Art Unit | |
| | Jonathan S. Lau | 1623 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. This communication is responsive to Applicant's Supplemental Amendment After Final and Remarks, filed 16 Aug 2010.
2. The allowed claim(s) is/are 49-51 and 70-87.
3. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some* c) None of the:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: EPO 03027750.3.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No./Mail Date ____.
 - (b) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. Notice of References Cited (PTO-892)
2. Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date ____
4. Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. Notice of Informal Patent Application
6. Interview Summary (PTO-413),
Paper No./Mail Date ____.
7. Examiner's Amendment/Comment
8. Examiner's Statement of Reasons for Allowance
9. Other ____.

/Shaojia Anna Jiang/
Supervisory Patent Examiner, Art Unit 1623

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

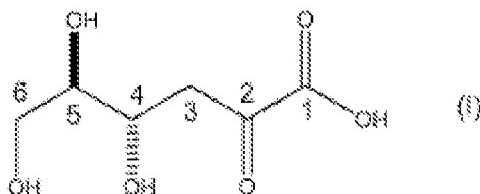
Authorization for this examiner's amendment was given in a telephone interview with Erin Dunston on 24 Aug 2010.

The application has been amended as follows:

Amendment to the Claims

- Claims 52-67, 88 and 89 are canceled.
- Claim 49 is amended as follows:

Claim 49 (Currently Amended) A method for producing 2'-deoxynucleosides or 2'-deoxynucleoside precursors, wherein said 2'-deoxynucleoside precursors are 2-deoxy-D-ribose (DRI) or carbohydrate compounds which can be converted into the 2-deoxy-D-ribosyl moiety of 2'-deoxynucleosides, including 1-phospho-2-deoxy-D-ribose, 5-phospho-2-deoxy-D-ribose, 2-deoxy-D-ribitol, 2-deoxy-D-ribonic acid, and 2-deoxy-D-ribono-1,4-lactone, ~~1-N-morpholino-3,4,5-trihydroxy-pentene-1, and their derivatives, from by decarboxylating~~ a compound of formula (I), or its salts,



or a protected form thereof wherein one or more of the hydroxyl groups at positions 4, 5, and/or 6 are protected by a protection group in a process comprising a decarboxylation step; wherein the decarboxylation step is effected by an enzymatic reaction comprising a single step, and the enzymatic reaction is catalyzed by an enzyme having keto acid decarboxylase activity.

Amendment to the Specification

- The specification at page 23, lines 11-19 is amended as follows:
for example electronic devices. For example the public database "Medline" may be utilized which is available on the Internet, ~~for example under~~ <http://www.ncbi.nlm.nih.gov/PubMed/medline.html>. Further databases and addresses, such as <http://www.ncbi.nlm.nih.gov/>, <http://www.infobiogen.fr/>, http://www.fmi.ch/biology/research_tools.html, <http://www.tigr.org/>, that of the National Center for Biotechnology Information ("ncbi") and the Friedrich Miescher Institute for Biomedical Research are known to the person skilled in the art and can also be obtained using, e.g., <http://www.google.de> readily-available search engines such as that provided by Google. An overview of patent information in biotechnology and a survey of relevant sources of patent information useful for retrospective searching and for current awareness is given in Berks, TIBTECH 12 (1994), 352-364.

DETAILED ACTION

This Office Action is responsive to Applicant's Supplemental Amendment After Final and Remarks, filed 16 Aug 2010, in which claim 49 is amended to change the scope and breadth of the claim.

Applicant's Supplemental Amendment After Final, filed 16 Aug 2010, will be entered because they simplify grounds for appeal and in view of the Examiner's Amendment herein they are deemed to place the application in condition for allowance.

This application is the national stage entry of PCT/EP04/06848, filed 24 Jun 2004; and claims benefit of foreign priority document EPO 03013457.1, filed 24 Jun 2003; and claims benefit of foreign priority document EPO 03027750.3, filed 02 Dec 2003. The certified copy of foreign priority document EPO 03013457.1, filed 24 Jun 2003, is retrieved from the EPO as per PCT rule 17.2(a).

Claims 49-67 and 70-89 are pending in the current application. Claims 52-67, 88 and 89, are canceled by Examiner's Amendment herein. Claims 83-87 are rejoined herein. Claims 49-51 and 70-87 are allowed in view of the Examiner's Amendment herein.

Priority

Receipt is acknowledged of EPO 03013457.1, filed 24 Jun 2003, submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

However, EPO 03027750.3, filed 02 Dec 2003, could not be retrieved from either the WIPO or EPO per PCT rule 17.2(a).

Election/Restrictions

Claims 49-51 and 70-82 are allowable. The restriction requirement among groups V, VI and VII, as set forth in the Office action mailed on 9 Dec 2008, has been reconsidered in view of the allowability of claims to the elected invention pursuant to MPEP § 821.04(a). **The restriction requirement is hereby withdrawn as to any claim that requires all the limitations of an allowable claim.** Claims 83-87, directed to methods comprising a preliminary step of producing a compound of formula (I) are no longer withdrawn from consideration because the claims require all the limitations of an allowable claim. However, claims 52-67, 88 and 89, directed to methods and an organism remain withdrawn from consideration because they do not all require all the limitations of an allowable claim, and are canceled by Examiner's Amendment herein.

In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

Rejections Withdrawn

Applicant's Amendment, filed 16 Aug 2010, with respect to claims 49-51 and 70-82 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement has been fully considered and is persuasive, as amended claim 49 recites the protected form to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention.

This rejection has been **withdrawn**.

Applicant's Amendment, filed 16 Aug 2010, with respect to claims 49-51 and 70-82 rejected under 35 U.S.C. 112, second paragraph, as being indefinite has been fully considered and is persuasive, as amended claim 49 recites the precursor to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This rejection has been **withdrawn**.

Applicant's Amendment, filed 16 Aug 2010, with respect to claims 49-51, 68-74, 78 and 81 rejected under 35 U.S.C. 102(b) as being anticipated by Wong (US Patent 5,759,825, issued 02 Jun 1998, of record) has been fully considered and is persuasive, as amended claim 49 recites the method for producing 2'-deoxynucleocides or the recited precursors by decarboxylating a compound of formula (I) such that the claim preamble is a statement of the intentional purpose for which the method must be performed, and the method of Wong does not decarboxylate a compound of formula (I) in order to produce a 2'-deoxynucleocides or the recited precursors and therefore does not meet this limitation of intentional purpose.

This rejection has been **withdrawn**.

Applicant's Amendment, filed 16 Aug 2010, with respect to claims 49-51, 68-78 and 81 rejected under 35 U.S.C. 103(a) as being unpatentable over Wong (US Patent 5,759,825, issued 02 Jun 1998, of record) in view of Candy et al. (Biochimica et Biophysica Acta, 1998, 1385, p323-338, of record) has been fully considered and is persuasive, as amended claim 49 recites the method for producing 2'-deoxynucleocides or the recited precursors by decarboxylating a compound of formula (I) such that the claim preamble is a statement of the intentional purpose for which the method must be performed, and the method of Wong in view of Candy et al. does not decarboxylate a compound of formula (I) in order to produce a 2'-deoxynucleocides or the recited precursors and therefore does not meet this limitation of intentional purpose.

This rejection has been **withdrawn**.

Applicant's Amendment, filed 16 Aug 2010, with respect to claims 49-51, 68-74, 81 and 82 rejected under 35 U.S.C. 103(a) as being unpatentable over Wong (US Patent 5,759,825, issued 02 Jun 1998, of record) with the CRC Handbook of Chemistry and Physics (Handbook of Chemistry & Physics Online, accessed online at www.hbcpnetbase.com, of record) providing evidence of the level of skill in the art has been fully considered and is persuasive, as amended claim 49 recites the method for producing 2'-deoxynucleocides or the recited precursors by decarboxylating a compound of formula (I) such that the claim preamble is a statement of the intentional purpose for which the method must be performed, and the method of Wong does not decarboxylate a compound of formula (I) in order to produce a 2'-deoxynucleocides or the recited precursors and therefore does not meet this limitation of intentional purpose.

This rejection has been **withdrawn**.

The closest prior art is Wong (US Patent 5,759,825, issued 02 Jun 1998, of record). As recited above, the method of Wong does not decarboxylate a compound of formula (I) in order to produce a 2'-deoxynucleocides or the recited precursors and therefore does not meet this limitation of intentional purpose.

Conclusion

Claims 49-51 and 70-87 are allowed in view of the Examiner's Amendment herein.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan S. Lau whose telephone number is 571-270-3531. The examiner can normally be reached on Monday - Thursday, 9 am - 4 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jonathan Lau
Patent Examiner
Art Unit 1623

/Shaojia Anna Jiang/
Supervisory Patent Examiner
Art Unit 1623